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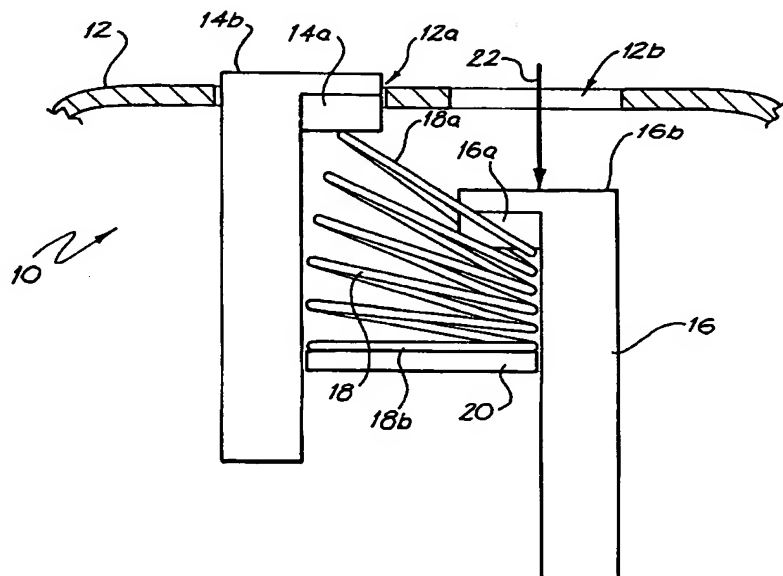
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(54) Title: A DUAL ACTUATION BUTTON ASSEMBLY



(57) Abstract: A dual actuation button assembly (10) for a dual volume flush cistern. The assembly includes dual actuation button members (14, 16) which are both adapted for movement upon actuation in a common actuation direction. A single spring (18) is adapted to apply a force to both of the button members (14, 16) in a direction opposite to the actuation direction. The spring (18) is adapted to maintain some of said force on one (14, 16) of the button members during actuating movement of the other of the button members (16, 14).

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## A DUAL ACTUATION BUTTON ASSEMBLY

## Field of the Invention

5           The present invention relates to a dual actuation button assembly for a dual volume flush cistern. A cistern is known as a flush tank in the United States of America.

## Background of the Invention

10           Known dual volumes flush cisterns have dual actuation buttons that allow a user to select between a full or partial volume flush. The buttons generally move between an upper rest position and a lower actuated position and are each biased to the rest position by a respective spring. These known dual spring arrangements are complicated to produce and assemble, and thus expensive.

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## Object of the Invention

          It is an object of the present invention to provide a dual actuation button assembly of simplified construction and assembly compared to those of the prior art.

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## Summary of the Invention

          Accordingly, the present invention provides a dual actuation button assembly for a dual volume flush cistern, the assembly including:

25           dual actuation button members, both adapted for movement upon actuation in a common actuation direction; and

          a single spring adapted to apply a force to both of the button members in a direction opposite to the actuation direction,

          wherein the spring is adapted to maintain some of said force on one of the button members during actuating movement of the other of the button members.

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          The button members are preferably mounted either side of the spring and each include a portion adapted to commonly abut a moveable end of the spring.

In one form, the button members include an integral exposed button part adapted for movement by a user. In another form, the button members are adapted to move in response to movement of an associated exposed button part, the button part being adapted for movement by a user.

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The assembly preferably includes a bridge member adapted for mounting to, or forming part of, a cistern. The end of the spring opposite the moveable end is preferably mounted to the bridge member. The button members are preferably mounted for movement relative to the bridge member.

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The button members are preferably adapted to move between a rest and an actuated position. The height of the spring is preferably sized to be slightly in compression when both of the buttons are in the rest position. The width of the spring is preferably sized to remain at least slightly in compression against one of the buttons in the rest position whilst the other of the buttons is in the actuated position.

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#### Brief Description of the Drawings

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

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Fig. 1 is a schematic side view of an embodiment of a dual actuation button assembly according to the invention, with both button members shown in the rest position;

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Fig. 2 is a schematic side view of the assembly shown in Fig. 1, with one of the button members shown in the rest position and the other of the button members shown in the actuated position; and

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Fig. 3 is a schematic side view of the assembly shown in Fig. 1, with both of the button members shown in the actuated position.

#### Detailed Description of the Preferred Embodiment

Referring firstly to Fig. 1, there is shown an embodiment of a dual actuation button assembly 10 according to the invention. The assembly 10 is configured for use within a dual volume flush cistern having a lid 12. The assembly 10 includes a pair of actuation button members 14 and 16 and a single spring 18.

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The button members 14, 16 are mounted either side of the spring 18 and include a portion 14a and 16a respectively that is adapted to abut a movable end 18a of the spring 18. A fixed end of the spring 18b abuts a bridge member 20 which is fixed relative to the cistern. The button members 14, 16 also each include a part 14b, 16b respectively, which  
10 protrude through corresponding openings 12a, 12b in the lid 12 so as to be exposed for actuation by a user. The button members 14, 16 are adapted, upon being depressed by a user, to move from an upper rest position to a lower actuated position.

Fig. 1 shows both the button members 14, 16 being maintained in the rest  
15 position. In this position, the spring 18 is slightly compressed and therefore provides a force to each of the button members 14, 16 to bias them into, and maintain them in, the rest position.

Fig. 2 shows the button member 14 in the rest position and the button member 16  
20 in the actuated position as a result of depression in the direction of arrow 22. Importantly, Fig. 2 demonstrates that the width of the spring 18 is sufficient to maintain the button member 14 in the rest position whilst the button member 16 is in the actuated position. Put another way, the side of the spring 18 adjacent the button member 14 is slightly compressed and still provides a biasing force to the button member 14. It will be  
25 understood that the button member 16 is similarly maintained in the rest position during movement of button member 14 to the actuated position.

Fig. 3 shows how the spring 18 is evenly compressed on both sides if both button  
members 14, 16 are depressed by a user to the actuation position in the direction of  
30 arrows 24.

The advantage of the dual actuation button assembly described above is that it has less parts than dual spring actuation button assemblies and is less complicated to produce and construct than known assemblies, which reduces expense.

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Although the invention has been described with reference to a preferred embodiment, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms. For example, in the embodiment described above, the button members have a part which protrudes through respective openings in the cistern lid  
5 for direct contact and actuation by a user. However, in other embodiments, the button members may be concealed within the cistern and move in response to movement of other components that are available for actuation by a user.

**The claims defining the invention are as follows:**

1. A dual actuation button assembly for a dual volume flush cistern, the assembly including:

5 dual actuation button members, both adapted for movement upon actuation in a common actuation direction; and

a single spring adapted to apply a force to both of the button members in a direction opposite to the actuation direction,

wherein the spring is adapted to maintain some of said force on one of the button members during actuating movement of the other of the button members.

10 2. The assembly as claimed in claim 1, wherein the button members are mounted either side of the spring and each include a portion adapted to commonly abut a moveable end of the spring.

3. The assembly as claimed in claim 1 or 2, wherein the button members include an integral exposed button part adapted for movement by a user.

15 4. The assembly as claimed in claim 1 or 2, wherein the button members are adapted to move in response to movement of an associated exposed button part, the button part being adapted for movement by a user.

20 5. The assembly as claimed in any one of the preceding claims, wherein the assembly includes a bridge member adapted for mounting to, or forming part of, a cistern.

6. The assembly as claimed in claim 5, wherein the end of the spring opposite the moveable end is mounted to the bridge member.

7. The assembly as claimed in claim 5 or 6, wherein the button members are mounted for movement relative to the bridge member.

25 8. The assembly as claimed in any one of the preceding claims, wherein the button members are adapted to move between a rest and an actuated position.

9. The assembly as claimed in claim 8, wherein the height of the spring is sized to be slightly in compression when both of the buttons are in the rest position.

30 10. The assembly as claimed in claim 8 or 9, wherein the width of the spring is sized to remain at least slightly in compression against one of the buttons in the rest position whilst the other of the buttons is in the actuated position.

11. A dual actuation button assembly for a dual volume flush cistern, the assembly substantially as hereinbefore described with reference to the accompanying drawings.

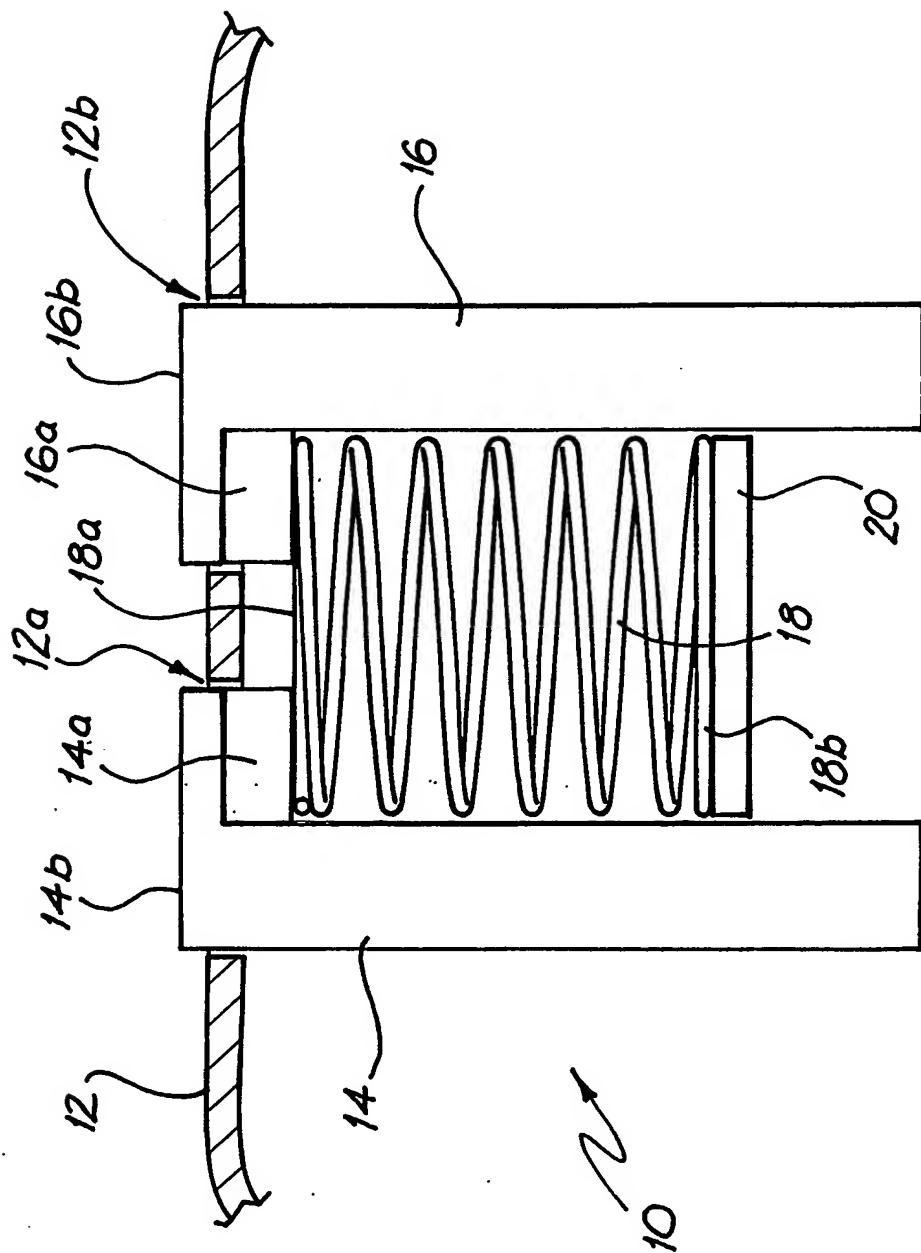
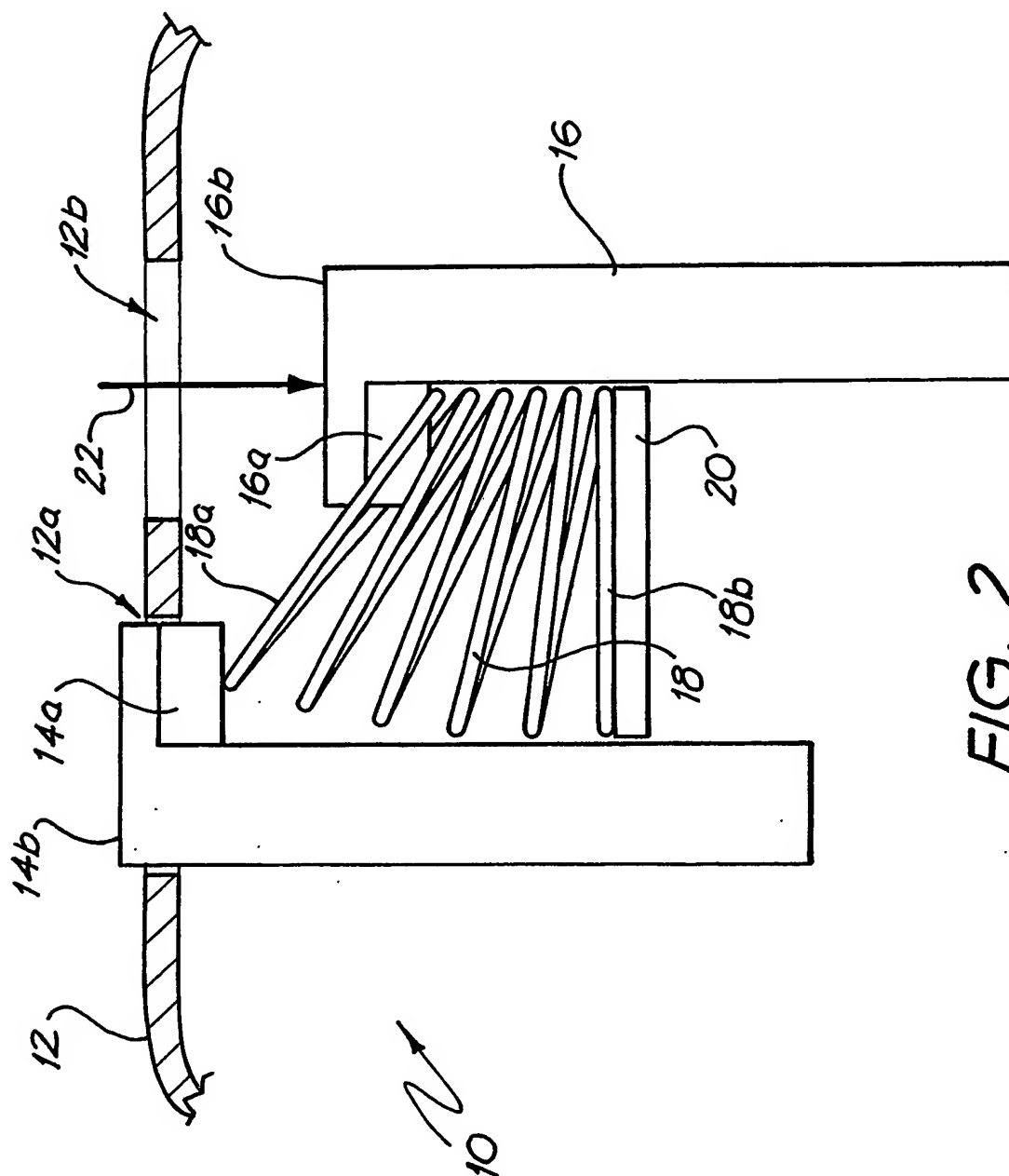


FIG. 1





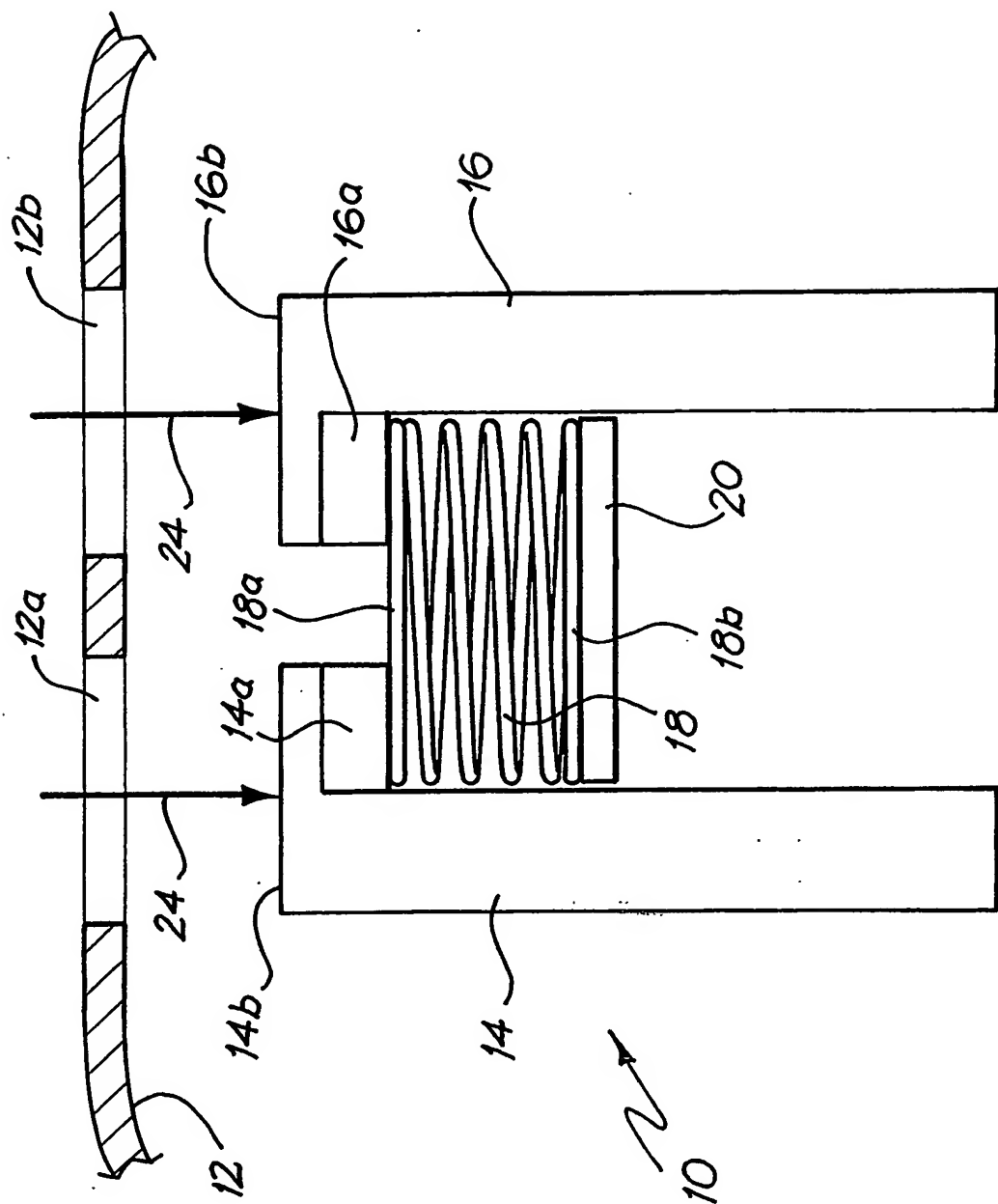


FIG. 3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/01109

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. <sup>7</sup>: E03D 1/14, E03D 1/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Refer Electronic Database consulted below

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

AU: E03D 1/14, E03D 1/22

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Derwent World Patent Index: (E03D-001/14 OR E03D-001/22) AND (BUTTON+ OR ACTUAT+)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 02/075063 A (SANTARTECHNIK EISENBERG GMBH) 26 September 2002 See Fig. 2	1 - 11
A	EP 727533 A (WISA B.V.) 21 August 1996 See Figs. 1 - 4, 8	1 - 11
A	US 5331690 A (POURCIER) 26 July 1994 See Figs. 1, 2, 4 - 7, 9 - 11	1 - 11

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 578892 A (ETABLISSEMENTS PORCHER) 19 January 1994 See Figs. 2, 4, 5, 8, 10	1 - 11
A	AU 43434/85 B (580783) (CROSSER) 2 February 1989 See Fig. 7	1 - 11

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU03/01109

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
WO	02075063	DE	10113115		
EP	0727533	NL	9500316		
US	5331690	AU	20527/92	CA	2074786
		FR	2680192	EP	0528740
EP	0578892	AU	10608/92	FR	2672322
AU	580783	AU	43434/85		
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